

CELESTE C. GRYNBERG
JACK J. GRYNBERG

IBLA 87-76, 87-77

Decided December 23, 1988

Appeal from a decision of the Wyoming State Office, Bureau of Land Management, increasing the annual rental for noncompetitive oil and gas leases. W 67762, W 67471.

Vacated and remanded.

1. Oil and Gas Leases: Burden of Proof--Oil and Gas Leases: Known Geologic Structure

Delineation of a KGS recognizes the existence of a continuous entrapping structure, on some part of which there is production, or of numerous related, but nevertheless independent, stratigraphic or structural traps. A party challenging a determination that lands are within a KGS must either show that the producing structure does not underlie the land or affirmatively establish that the land involved is not productive from the structure in question. A determination by a Departmental technical expert that lands qualify for inclusion in a KGS will not be set aside when it is not arbitrary and capricious and is supported by competent evidence.

2. Oil and Gas Leases: Known Geologic Structure

Absent some justification to show the relation between state-established spacing units and the concept of a KGS, BLM should include in a KGS only the smallest legal subdivision (quarter quarter section) traversed by the boundary of the structural or stratigraphic trap. A KGS boundary which has been positioned to include all sections touched by the zero contour line of an isopach map must be retracted to include only the smallest legal subdivision traversed.

3. Oil and Gas Leases: Known Geologic Structure

When in response to an appeal BLM makes statements of fact which are inconsistent with the findings concerning

the extent of a presumably productive formation shown by the isopach map for the KGS the Board will conclude that the map incorrectly portrays the formation.

APPEARANCES: Celeste C. Grynberg and Jack J. Grynberg, Denver, Colorado, pro sese; Lowell L. Madsen, Esq., Office of the Regional Solicitor, U.S. Department of the Interior, Denver, Colorado, for the Bureau of Land Management.

OPINION BY ADMINISTRATIVE JUDGE IRWIN

Jack J. Grynberg and Celeste C. Grynberg have appealed separate decisions of the Wyoming State Office, Bureau of Land Management (BLM), dated September 30 and October 2, 1986, which increased the annual rental for their noncompetitive, nonproducing oil and gas leases W 67471 and W 67762 respectively. 1/ In each case the effect of BLM's decision is to increase the annual rental rate from \$1 per acre, or portion thereof, to \$2 per acre, or portion thereof. We have consolidated the appeals because of the leases' geographical proximity and because the parties filed nearly identical statements of reasons.

The basis for BLM's decision was a determination that the leased lands are within the Washakie Basin Known Geologic Structure (KGS). The Washakie Basin KGS is an extremely large stratigraphic KGS which includes portions of approximately 50 townships in the Washakie and Great Divide Basins of Sweetwater and Carbon Counties, Wyoming. The appellants' oil and gas leases are in the southeastern portion of the KGS. Although one of appellants' arguments is that BLM's method for establishing the KGS boundary is flawed, the appeal concerns primarily BLM's determination that the leased lands are properly included within the KGS.

[1] A KGS is defined as "technically the trap in which an accumulation of oil and gas has been discovered by drilling and determined to be productive, the limits of which include all acreage that is presumptively productive" 43 CFR 3100.0-5(l). Delineation of a KGS recognizes the existence of a continuous entrapping structure, on some part of which there is production, or of numerous related, but nevertheless independent, stratigraphic as well as structural traps. Thunderbird Oil Corp., 91 IBLA 195, 202 (1986), aff'd sub nom., Planet Corp. v. Hodel, Civ. No. 86-679 HB (D.N.M. May 6, 1987).

1/ Oil and gas lease W 67762 for 40 acres, consisting of the NW[^] NW[^] sec. 12, T. 13 N., R. 93 W., sixth principal meridian, Carbon County, Wyoming, was issued to Celeste C. Grynberg with an effective date of June 1, 1979. Oil and gas lease W 67471, now held by Jack J. Grynberg, was issued with an effective date of May 1, 1979, for 596.44 acres, consisting of lots 1, 2, 3, and 4, and the S\ N\, SW[^], N\ NW[^], SW[^] SE[^], sec. 2, T. 13 N., R. 93 W., sixth principal meridian, Carbon County, Wyoming. Appellants' Exhibit I does not correctly portray the acreage held under the latter lease.

An appellant challenging a KGS determination must either show that the producing structure does not underlie the land or affirmatively establish that the land involved is not productive from the structure in question. Id. The law is settled that a party challenging a BLM determination that lands are within a KGS has the burden of establishing by a preponderance of the evidence that inclusion of the land is erroneous. Bender v. Clark, 744 F.2d 1424, 1429-30 (10th Cir. 1984); Carolyn J. McCutchin, 103 IBLA 1 (1988); Thunderbird Oil Corp., supra at 201.

The Secretary of the Interior has delegated the responsibility for determining the existence and extent of KGS's to his technical experts in the field. When these technical experts make a determination that lands qualify for inclusion in a KGS, the Secretary is entitled to rely upon their reasoned opinion. Thunderbird Oil Corp., supra at 202; Champlin Petroleum Co., 86 IBLA 37, 40 (1985). A determination by a Departmental technical expert will not be set aside when it is not arbitrary and capricious and is supported by competent evidence. Thunderbird Oil Corp., supra; Lowell J. Simons, 104 IBLA 129, 131 (1988).

In their statements of reasons (SOR) appellants raise four points directed toward showing error in BLM's determination that the leased land is properly located within the KGS. Exhibits have been provided to substantiate the factual claims on which appellants base their arguments. BLM has filed an answer which includes a "geological report" addressing appellants' four points and a copy of a portion of the isopach map for the Washakie Basin KGS (Ericson Reservoir). Each side has filed three additional responses to the arguments made by the other.

Our review of these documents has disclosed two matters concerning the isopach map for the KGS which preclude our finding that BLM correctly determined that the leased land lies within a KGS. Because the case file does not contain the information relied upon by BLM to establish the contours of the isopach map for the presumably productive portion of the Ericson formation, we cannot ascertain the true facts of the matter. In any event, the record before us contains insufficient evidence to support a determination that the formation underlies the leased land. Accordingly, we will vacate BLM's decision and remand the case for review of the relevant data, redetermination of the KGS boundary, and review of its relation to the leased lands. For this reason, we will not address in detail all of the arguments raised by the parties.

In order to understand the combined effect of the two errors concerning the isopach map we have noted, it is necessary to understand the geographic relation of the location of the leases to a portion of the KGS boundary established by BLM. As explained in the "KGS Geologic Report for a Part of the Washakie Basin KGS Sweetwater County, Wyoming," the boundary lines of the presumptively productive formation are based on the zero isopach line of the net pay map for the Ericson formation (Appellant's Exhibit III at 3). "Parameters for determining net pay included a >6% porosity cutoff on the compensated neutron formation density logs, and a >15 ohm resistivity cutoff on the electric logs." Id. at 2. The report also states: "The administrative boundary is based on the 640-acre spacing designation set in this

area. Each 640-acre spacing unit intersected by the zero isopach line is, therefore, included within the KGS boundary." Id. at 3.

The portion of the isopach map for the Washakie Basin KGS provided by BLM shows a portion of the southern boundary of the KGS to run along the southern boundary of secs. 30-27, T. 13 N., R. 92 W., turn north along the eastern boundary of sec. 27, and then east along the northern boundary of sec. 26. The same portion of the southern boundary of the KGS extends across the northern side of sec. 36, T. 13 N., R. 93 W., and then turns south on the western side of that section. Across from the northwest corner of sec. 36, the zero contour line crosses the southeastern corner of sec. 26 in a northerly direction. It moves north along part of the western boundary of secs. 25 and 24 before swooping westerly through secs. 23, 14, 15, and 10. In sec. 10 the zero contour line turns north, beginning an eastwardly loop through secs. 3 and 2. From sec. 2 the zero contour line moves southeast through secs. 11, 12, and 13, and, entering R. 92 W., through secs. 18, 19, 20, and 29. In sec. 29 it turns east through sec. 28 and part of sec. 27 where it turns northeast to cross the northeast corner of the section.

[2] The first error is a matter of law rather than fact. In Pamela S. Crocker-Davis, 94 IBLA 328, 332 (1986), the Board concluded that, absent some justification to show the relation between state-established spacing units and the concept of a KGS, BLM should include in a KGS only the smallest legal subdivision (quarter quarter section) traversed by the boundary of the structural or stratigraphic trap. Accord Charles J. Rydzewski, 105 IBLA 9 (1988); Ecological Engineering Systems, 104 IBLA 117, 121 (1988). Absent a justification showing that the spacing unit implies the presence of hydrocarbons, use of state spacing units to determine the boundaries of a KGS would appear to be based on administrative convenience rather than geologic information. Kathleen M. Blake, 96 IBLA 61, 75-76 (1987). As stated in the report for the KGS, BLM has positioned the KGS boundary to include all sections touched by the zero contour line. In accord with Pamela S. Crocker-Davis, supra, the boundary of the KGS must be retracted to include only the smallest legal subdivision traversed by the zero contour line.

As described above, although the zero contour line nearly touches the KGS boundary in the southeast corner of sec. 26, R. 93 W. and the northeast corner of sec. 27, R. 92 W., it does not parallel the southern portion of the KGS boundary but forms a loop which extends nearly 5 miles inside the boundary. Adjusting the KGS boundary to conform to the loop so that only the smallest legal subdivision is included will eliminate from the KGS portions of at least nine sections as well as all of sec. 30, in R. 92 W. This modification in the KGS boundaries, however, will not place all of the lands leased by appellants outside the KGS. Rather, it will exclude from the KGS only a portion of the lease for sec. 2 held by Jack J. Grynberg and place the 40 acre lease in sec. 12 held by Celeste C. Grynberg just inside the boundary.

The second error in the isopach map is disclosed by the briefs filed by the parties. In their statement of reasons (SOR) appellants argue that

the porosity limit of the Ericson formation lies to the northeast of their acreage (see Exh. 1). This argument is based on information from four wells, three of which are of concern here (see Exh. II). The first is the Snyder Oil Company CIGE Federal 1-25 located in the W\ SW^, sec. 25, T. 14 N., R. 93 W. It is a producing well. The second well is the nonproducing William Moss CIG 13-93 Federal located in the NE^ SW^, sec. 10, T. 13 N., R. 93 W. The third well is the Diamond Shamrock #1 Red Prong Federal, a dry hole drilled in sec. 21, T. 13 N., R. 92 W.

The first point argued in appellants' SOR's is that, of the three perforations made in the Ericson formation for the Snyder well:

Only one * * * can be correlated southwestward into the log of the William Moss well; the zone between 11,397 to 11,412 feet. Log resistivity, however, is off scale and is approximately 110 ohms indicating no porosity. In fact this zone is the only bench in the lower Ericson formation to display any appreciable SP curve deflection. The entire section from 11,300 to 11,560 feet (pay interval in the Snyder well) becomes extremely shaley and lacking sand development. There is a heavy concentration of high resistivity (offscale) readings in the Moss well from just below the shale marker (10942 to 10960 feet) all the way to total depth.

An examination of the logs over this interval failed to reveal the presence of intergranular porosity. A drill stem test was taken in the well * * * from 10,417 to 11,605 feet, a total of 1188 feet. * * * As mentioned before, an examination of the Dual Induction and the Neutron Density logs over this interval fail [sic] to reveal any intergranular porosity.

(SOR at 1-2). Based on the facts they present, appellants conclude that the absence of the producing Snyder well zones in the Moss well, "coupled with extremely high resistivity readings and a lack of porosity clearly defines this well as non-productive according to the BLM's parameters for the Ericson formation" (SOR at 2).

Appellants' second point is that the Diamond Shamrock well was a dry hole and, along with the Moss well, can serve to define a portion of "the downdip limits of hydrocarbon production in the adjacent Blue Gap Field," which is to the north of appellants' leased acreage (SOR at 2, see Exh. IV).

BLM's response, contained in a geological report which is part of the answer, states in regard to appellants' first point that "BLM agrees that there is no porosity in the CIG No. 10-13-93 Federal" (BLM Exh. 1 at 1). The response continues by explaining that the Grynberg acreage is properly included in the KGS because:

The parameters for establishing the Ericson reservoir is [sic] porosity greater than 6% and resistivity greater than 15 ohms. All sections cut by the zero contour line are included in the KGS. Therefore, even though there is no porosity in the CIG

No. 10-13-93 Federal, interpretation of the extent of the Ericson reservoir includes the Grynberg acreage.

Similarly, the portion of the report responding to appellants' second point states: "The BLM agrees that there is no porosity in the CIG No. 10-13-93 Federal, and the Ericson reservoir map reflects the fact that there is no porosity." Id. BLM goes on to note that the Diamond Shamrock well did not penetrate the Ericson formation and "therefore the Appellant could not determine if the well would mark the down dip limit of production from the Ericson." Id. at 2.

[3] BLM's statements that the Moss CIG 10-13-93 Federal well has no porosity are inconsistent with the findings represented by the isopach map. The copy of the portion of the isopach map provided by BLM clearly shows that the zero contour line passes through the Moss well. The legend on the map and the geological report for the KGS previously quoted, as well as BLM's answer quoted above, are equally clear that the zero contour line represents a finding that Ericson formation of at least 6-percent porosity underlies the land. Thus, as shown on the KGS isopach map, Ericson formation of at least 6-percent porosity underlies the Moss well. The map does not show that the Moss well has no porosity. In that BLM repeatedly states in its answer that it agrees with appellant that the Moss well has no porosity in the Ericson formation, we conclude that the zero contour line shown on the KGS isopach map is incorrectly positioned. 2/

Because we cannot rely upon the zero contour line on the isopach map as correctly portraying the extent of the productive formation which is the basis for the KGS, we vacate BLM's decision to increase the annual rental for appellants' leases because they are within the KGS. The record before us is not sufficient to allow any additional determination as to the true extent of the Ericson formation and, correspondingly, the location of the KGS boundary. Accordingly, we will remand the case files to BLM to reexamine the data on which it based the position of contour lines for the KGS and reestablish the position of the contour lines and the KGS boundary. 3/

2/ It is possible that BLM's response to appellants' argument was merely intended to state that BLM agrees that the Federal well effectively has no porosity because the porosity is less than 6 percent. Even if this were BLM's position, however, we would find the zero contour line to be incorrectly positioned because it clearly runs through, rather than to the side of, the position shown for the well.

3/ On remand BLM need not review and revise the contour lines and KGS boundary for the entire Washakie Basin KGS. Leases issued after enactment of the Federal Onshore Oil and Gas Leasing Reform Act of 1987, P.L. 100-203, 101 Stat. 1330; see 53 FR 22814, 22843 (June 17, 1988), are not affected by the placement of the boundary of the Washakie Basin KGS. For the purpose of resolving questions pertaining to appellants' leases, it may be sufficient to review only data concerning the southeastern portion of the KGS where the leases are located.

The task is one properly handled by the geological experts within the Department. It appears from the isopach map for the KGS that the contour lines for the Ericson formation were arrived at based on information from wells drilled in widely scattered locations. The wells nearest to the Moss well are the previously mentioned Snyder 1-25 Federal, another well to the northeast, and one almost directly to the south. All are approximately 3 miles distant. The nearest well to the North is over 4 miles away. The closest well to the East is the Diamond Shamrock well, which is about 5 miles distant, but, as noted by BLM, that well did not reach the Ericson formation and does not provide direct information as to the extent of the Ericson formation. Re-examining the information from these and other wells to correctly determine the extent of the Ericson formation will be a complex task. Any change in the position of a contour line is likely to change the position of the line for a considerable distance, as well as affect the position of other contour lines.

Finally, we wish to comment on two arguments raised in the briefs. The fourth point raised in appellants' SOR's is an argument that BLM's methodology for establishing the extent of the Ericson formation is fundamentally flawed because it is based only on measurements of porosity and resistivity and fails to take into account available information as to permeability. In support of their claim that the methodology is flawed, appellants supplied Petroleum Information cards for two wells which penetrated the Ericson formation, were claimed by appellants to have recovered no hydrocarbons, yet were assigned 30 and 42 feet of net pay in the Ericson formation under BLM's methodology.

In its answer BLM missed the thrust of appellant's argument, stating that the two wells had no bearing on the appeal because they were 35 miles from the leased land. BLM also stated that it is possible that wells which should be producing wells are drilled and abandoned "because of poor completion practices" (Answer Exh. at 2). This comment led to a series of exchanges between the parties over why a well might not be completed or productive even though hydrocarbons are present in the ground. Although BLM's original comment was intended to suggest that there may be other reasons for the anomalous results pointed out by the appellants, the suggestion does not resolve the issue raised by the argument. Nor does the exchange which followed cast light on the issue. Eventually, however, in its third response, BLM provided information that one of two wells appellants referred to did have shows of hydrocarbons from the Ericson formation, thus countering as to that well the incongruity pointed out by appellants.

The second matter we wish to address is the argument appellants raised in their response to BLM's answer that inclusion of the acreage within the KGS is a breach of contract. Such is not the case. Section 2(d) of each of appellants' leases provides for the payment of annual rental "at the following rates":

- (a) If the lands are wholly outside the known geologic structure of a producing oil or gas field:

(i) For each lease year a rental of \$1.00 per acre or fraction of an acre.

(b) If the lands are wholly or partly within the known geologic structure of a producing oil or gas field:

(i) Beginning with the first lease year after 30 days' notice that all or part of the land is included in such a structure and for each year thereafter, prior to a discovery of oil or gas on the lands leased, \$2 per acre or fraction of an acre.

The leases anticipate that BLM may later determine that the leased land is within a KGS and provide that, upon notice to the lessees, BLM may increase the rental as provided by the lease terms. BLM's decision now under appeal gave appellants such notice. The factual basis for the determination that the land is included in the KGS has been challenged in the appeal. Although we have determined that BLM's decisions to increase the annual rentals must be vacated, the issuance of the decisions was not contrary to the terms of the leases.

Accordingly, pursuant to the authority delegated to the Board of Land Appeals by the Secretary of the Interior, 43 CFR 4.1, the decisions of the Wyoming State Office are vacated and the case files remanded for action consistent with this decision.

Will A. Irwin
Administrative Judge

I concur:

Wm. Philip Horton
Chief Administrative Judge